

**Attachment E**  
**to**  
**North Dakota Department of Health Response to Public Comments**  
**GTL Energy, Ltd.**  
**GTLE Dakota Plant 1 LLC Coal Beneficiation Plant**

**Erionite Information**

# **NORTH DAKOTA ERIONITE QUESTION AND ANSWER SHEET**



**NORTH DAKOTA**  
DEPARTMENT of HEALTH



This information sheet is meant to provide answers to questions people may have in regards to the North Dakota erionite medical health study.

**Question:** Why is this research being done?

**Answer:** The purpose of this medical study is to try to get an indication of whether health problems related to erionite exposure in the western parts of North Dakota are observed.

**Question:** What is erionite?

**Answer:** Erionite is a fibrous mineral with some properties similar to asbestos, but is not regulated as a form of asbestos fiber.

**Question:** Why is erionite a concern?

**Answer:** Like asbestos, erionite may pose health risks to those who breathe in the fibers for long periods of time. Exposure appears to be associated with increased risk of fibrogenic lung disease (a condition in which mineral dusts cause thickening or scarring of lung tissue), lung cancer and mesothelioma (a rare type of respiratory cancer usually related to asbestos exposure). According to the World Health Organization, International Agency for Research on Cancer, erionite is a known human carcinogen and has been associated with numerous health effects and deaths in Turkey.

**Question:** Who is conducting the research?

**Answer:** The U.S. Environmental Protection Agency and North Dakota Department of Health have contracted with the University of Cincinnati to implement the study.

**Question:** Who can volunteer for the study?

**Answer:** Health related problems from exposure to erionite can depend on how much erionite a person is exposed to and for how long. This study is targeted toward individuals that have worked in high erionite exposed environments such as road maintenance crews, professional drivers (e.g., mailman, school bus driver, delivery drivers), gravel pit workers and possibly other professions exposed to erionite containing gravel.

**Question:** How will participants be selected?

**Answer:** Participants will be selected based on a number of criteria, including employment history, job responsibilities, exposure time, medical history and other variables.

**Question:** What would a participant be expected to do?

**Answer:** All participants will need to

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complete a questionnaire over the phone regarding your occupational and medical history, and information on other exposures you may have experienced, as well as be available for a chest x-ray and high-resolution computed tomography (HRCT) scan, both of which will be paid for by the study.

**Question:** Are there any risks from participating in the medical testing?

**Answer:** The risk associated with participation in this study is minimal. Chest radiographs and HRCT are routine tests used to identify abnormalities within the chest and lung associated with exposure to asbestos and asbestos-like fibers.

**Question:** Does it cost to volunteer for the study?

**Answer:** No.

**Question:** If I participate, will my information be kept confidential?

**Answer:** Yes. The data from the study may be published; however, no names will be identified. Only those individuals directly involved in the implementation of this study will have access to gathered information.

**Question:** How long will the study take?

**Answer:** Completion of all parts of the study should take no more than 4 hours. You will be in the research study for approximately one to three months depending upon when you decide to complete all parts of the study.

**Question:** If I participate in the study and am found to have health problems related to erionite exposure, what happens then?

**Answer:** Individual results will be shared with the participants, but it will be the

participant's responsibility to further discuss the results and any future medical needs with their own health care provider.

**Question:** How can a person protect themselves from possible exposure to erionite?

**Answer:** The extent of the erionite exposure in western North Dakota is unknown, but given the toxic nature of the material, reducing exposure is recommended. Recommendations for county highway departments, businesses and private landowners include finding alternative sources of gravel and limiting or eliminating exposure to erionite fibers.

**Question:** When will the study begin?

**Answer:** The initial screening questionnaire is expected to be available in March, 2009.

For more information regarding erionite in North Dakota, please contact either:

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North Dakota Department of Health  
Air Quality Division  
918 E. Divide 2nd Floor  
Bismarck, ND 58501  
mdihle@nd.gov  
(701) 328-5188

Libby Faulk  
Community Involvement Coordinator  
U.S. EPA Region 8 (8OC)  
1595 Wynkoop St.  
Denver, Colorado 80202  
faulk.libby@epa.gov  
(303) 312-6083

# **NORTH DAKOTA ERIONITE UPDATE AND MEDICAL STUDY INFORMATIONAL SHEET**



**NORTH DAKOTA**  
DEPARTMENT of HEALTH



## **Background**

In 2006, the North Dakota Department of Health (NDDoH) and the North Dakota Geological Survey initiated an investigation of naturally-occurring erionite deposits located in rural areas near the Killdeer Mountains, Chalky Buttes and Little Badlands mountain areas in Dunn, Slope and Stark counties. The investigation was started because these areas have been used for gravel sources for rural county roads and other areas for several decades.

Erionite is a fibrous mineral with some properties similar to asbestos. It is not regulated as a form of asbestos fiber. Like asbestos, erionite may pose health risks to those who breathe in the fibers. Exposure appears to be associated with increased risk of fibrogenic lung disease (a condition in which mineral dusts cause thickening or scarring of lung tissue), lung cancer and mesothelioma (a rare type of respiratory cancer usually related to asbestos exposure). According to the World Health Organization, International Agency for Research on

Cancer, erionite is a known human carcinogen and has been associated with respiratory health effects in Turkey. NDDoH requested the U.S. Environmental Protection Agency's (EPA) assistance to investigate the situation and evaluate the possibility that erionite in the gravels may pose a health threat to residents in these areas.

This informational sheet provides an update of the investigation and information on a focused medical study.

## **Medical Study**

The medical study will focus on a volunteer target audience designed to determine the prevalence of chest X-ray and chest CT scan changes in a population of workers potentially exposed to erionite contained in road gravel used in portions of western North Dakota. The target audience will be individuals who have the highest potential of exposure such as persons who have worked in gravel pits or road crews and possibly others exposed to these erionite containing gravels for an extended period. The study will consist of an occupational and medical

pulmonary questionnaire, chest X-rays and CT scans of voluntary applicants that meet specific criteria related to employment history, job responsibilities, exposure time, and other variables.

This study is not meant to provide medical assistance based on one's results but to provide clinical evidence that will assist North Dakota officials and EPA in deciding if there are potential health concerns with individuals with the highest exposure risk. Results from this study may determine whether or not additional study is needed. The individual results of the medical study will be shared with the individuals who participate, but it will be their responsibility to further discuss the results and any future medical needs with their primary health care provider, if necessary. The State of North Dakota intends to distribute the initial Screening Questionnaire for the medical study in spring, 2009.

#### **Erionite Investigation Update**

The current investigation of the gravels and potential exposures focuses in the Killdeer area of Dunn County. In October, 2006 EPA conducted a sampling program to evaluate the erionite mineralogy and to determine if gravels contained erionite fibers that could become airborne and available for inhalation. EPA met with the County Commissioners and county

road maintenance supervisors and hosted a public meeting in Killdeer in April, 2008 to present the preliminary information and concerns.

EPA conducted additional sampling in June, 2008 that evaluated more exposure scenarios to better understand potential exposure to people in the area. The results showed that erionite fibers can become airborne when disturbed, such as with driving, and that the fibers are of a size that can be easily inhaled. There have been no observed health-related impacts from erionite exposure in North Dakota to date. Nonetheless the EPA and the NDDoH plan to implement a focused medical study to get a better understanding of potential health impacts related to erionite exposure in western North Dakota.

For more information or questions regarding erionite, please contact one of the following:

Mark Dihle  
North Dakota Department of Health  
Air Quality Division  
(701) 328-5188  
email: [mdihle@nd.gov](mailto:mdihle@nd.gov)

Libby Faulk  
US EPA, Region 8  
Community Inv. Coordinator  
1-800-227-8917, ext. 6083  
email: [faulk.libby@epa.gov](mailto:faulk.libby@epa.gov)

# North Dakota Erionite Initial Screening Questionnaire



NORTH DAKOTA  
DEPARTMENT of HEALTH

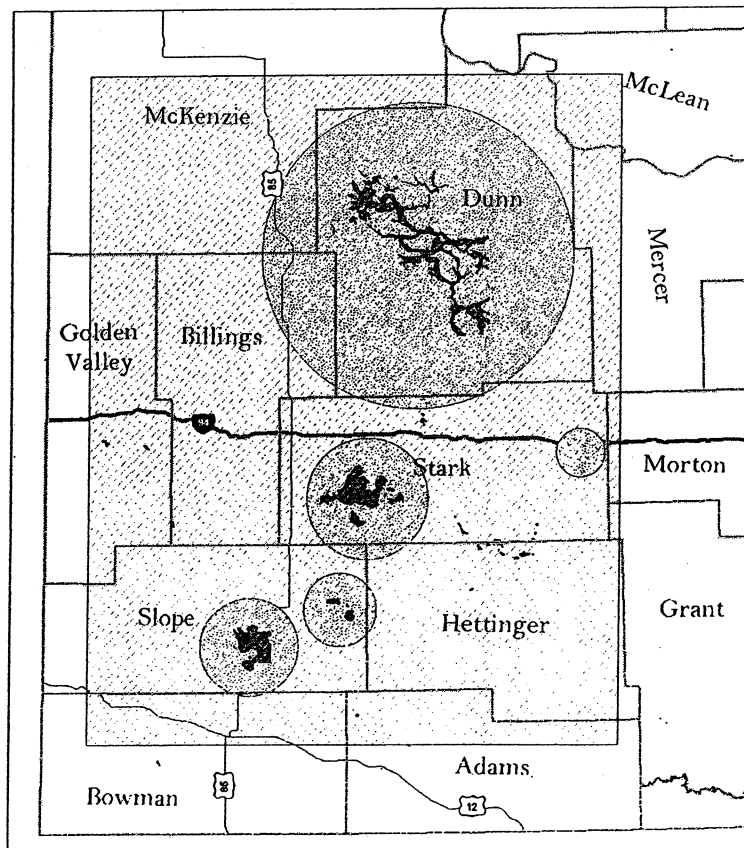
The U.S. Environmental Protection Agency (EPA) and the North Dakota Department of Health (NDDoH) are seeking participants for a medical study to determine if erionite in road gravel could increase health risks to exposed individuals. Medical faculty from the University of Cincinnati will conduct the study on behalf of EPA and NDDoH. While no health-related impacts from erionite exposure in North Dakota have been observed, the study will provide a more thorough evaluation of potential health effects in persons with likely exposure.

**Objective:** The objective of this initial screening questionnaire is to identify individuals who have been potentially occupationally exposed to erionite in road gravel in western North Dakota, and to determine their eligibility for potential participation in the subsequent medical study. The objective of the subsequent medical study is to determine the prevalence of chest X-ray and chest CT scan changes in a population of workers potentially exposed to erionite contained in road gravel used in portions of western North Dakota.

**Study Process:** The first step in the study is to identify people potentially exposed to erionite in road gravel. The persons who are considered to have the highest potential exposure are persons who have worked in the gravel pits, processed gravel, worked on road crews, or those who drove as a major part of their job (mail carriers, bus drivers, truck drivers, law enforcement officers, etc.). If you have held one of these identified jobs, you could be included in the study. **Please fill out and submit the attached initial screening questionnaire to indicate your interest in being considered for inclusion in the subsequent medical study.** Submitting this questionnaire does not commit you to participating in the subsequent medical study. Completed questionnaires will be reviewed by EPA, NDDoH, Agency for Toxic Substances and Disease Registry

(ATSDR) and University of Cincinnati representatives to identify medical study participants. Individuals with the highest potential exposures will be requested to participate in the medical study, which includes a more comprehensive questionnaire, chest x-ray and chest CT scan. Individuals who are not selected for inclusion in the medical study will be notified. Participants in the medical study will receive interpretation of their results including copies of the medical tests. Information on this Initial Screening Questionnaire and medical study results will be kept confidential and anonymous.

**Background:** Erionite is naturally occurring in the ore that is used for road surface material in western North Dakota. Some properties of erionite are similar to the properties of asbestos; however, erionite is not currently regulated by EPA. Like asbestos, erionite may pose increased risks of fibrogenic lung disease, lung cancer and mesothelioma (a rare type of respiratory cancer usually related to asbestos exposure) to those who breathe in the fibers. The possible health effects of environmental exposure to erionite in North Dakota have not been studied.



- Formations That Are Likely to Contain Erionite
- Gravel Mining Areas of Concern
- Gravel Road Areas of Concern

# North Dakota Erionite Initial Screening Questionnaire



**NORTH DAKOTA**  
DEPARTMENT of HEALTH

## CONTACT INFORMATION

Name: \_\_\_\_\_ Age: \_\_\_\_\_ Gender (circle one): Male Female  
First Name Middle Name Last Name

Home Phone Number: ( ) - Cell Phone Number: ( ) -

Work Phone Number: ( ) - E-mail address: \_\_\_\_\_

Street Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_ County: \_\_\_\_\_

Mailing Address (if different): \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

How long have you lived in western North Dakota (see map of area of concern)? \_\_\_\_\_

## EMPLOYMENT HISTORY

Have you ever been employed in western North Dakota (see map of area of concern) as any of the following (check all that apply). Indicate counties where employment occurred, ranking them A, B, C, or D, with A being the county where you worked in the job the most.

_____ Gravel Pit Worker Dunn _____ Slope _____ Stark _____ Other _____	From (Month/Year) _____ To (Month/year) _____ Average number of months per year _____ Total number years _____
_____ Road Maintenance Worker Dunn _____ Slope _____ Stark _____ Other _____	From (Month/Year) _____ To (Month/year) _____ Average number of months per year _____ Total number years _____
_____ Mail carrier Dunn _____ Slope _____ Stark _____ Other _____	From (Month/Year) _____ To (Month/year) _____ Average number of months per year _____ Total number years _____
_____ School Bus Driver Dunn _____ Slope _____ Stark _____ Other _____	From (Month/Year) _____ To (Month/year) _____ Average number of months per year _____ Total number years _____
_____ Truck Driver (delivery, local hauler) Dunn _____ Slope _____ Stark _____ Other _____	From (Month/Year) _____ To (Month/year) _____ Average number of months per year _____ Total number years _____
_____ Law Enforcement Officer Dunn _____ Slope _____ Stark _____ Other _____	From (Month/Year) _____ To (Month/year) _____ Average number of months per year _____ Total number years _____

# North Dakota Erionite Initial Screening Questionnaire



NORTH DAKOTA  
DEPARTMENT of HEALTH

## EMPLOYMENT HISTORY (continued)

Have you had any job(s) not included in the employment history above where you think you may have been exposed to gravel dust from the area of concern (see map). Indicate counties where employment occurred, ranking them A, B, C, or D, with A being the county where you worked in the job the most.

Job duties: \_\_\_\_\_

Month/Year started: \_\_\_\_\_ Month/Year ended: \_\_\_\_\_ Number of Months per year: \_\_\_\_\_

Dunn \_\_\_\_\_ Slope \_\_\_\_\_ Stark \_\_\_\_\_ Other \_\_\_\_\_

Job duties: \_\_\_\_\_

Month/Year started: \_\_\_\_\_ Month/Year ended: \_\_\_\_\_ Number of Months per year: \_\_\_\_\_

Dunn \_\_\_\_\_ Slope \_\_\_\_\_ Stark \_\_\_\_\_ Other \_\_\_\_\_

## CONSENT

I have read the included information for the North Dakota Erionite Medical Study and would like to be considered for participation in the study. By submitting this questionnaire my potential exposure to erionite in road gravel will be evaluated by representatives of the U.S. Environmental Protection Agency, the North Dakota Department of Health, Agency for Toxic Substances and Disease Registry (ATSDR), and representatives of the University of Cincinnati who will be overseeing the study. Completion of the questionnaire does not mean that I will be automatically included in the group of people who are included in the subsequent medical study and who undergo medical testing. Furthermore, by submitting this questionnaire I am not committing to participate in the subsequent medical study and I may withdraw from participating at any time. Information on this Initial Screening Questionnaire and subsequent medical study results will be kept confidential and anonymous.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Thank you for your interest in this study and for completing the questionnaire. Please forward your completed questionnaire to Mark Dihle of the North Dakota Department of Health at the address below. If you know anyone who had any of the listed jobs and may have been exposed to gravel dust, please let them know about this planned study.

Additional information and Initial Screening Questionnaires are available from:

Mark Dihle  
North Dakota Department of Health / Air Quality  
918 E. Divide, 2nd Floor  
Bismarck, ND 58501

Phone: (701) 328-5188  
e-mail: [mdihle@nd.gov](mailto:mdihle@nd.gov)  
website: <http://www.ndhealth.gov/EHS/Erionite/>